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Chapter 11

Application to Work: The PECO Nuclear Turn Around



Peach Bottom Atomic Power Station

The following story of deep and successful culture change is written from a practitioner's point of view. Our hypothesis, that organizations that respect the role of emotion in human systems (in concert with other variables such as role, goal, and decision clarity) will meet or exceed their performance expectations was realized with dramatic fashion in this and numerous other scenarios. The methodology is a blueprint for culture change.

Research has consistently demonstrated that Emotional Intelligence is the critical variable in professional performance. This is especially true in a hierarchy, where authority relationships are prone to irrational behavior by both bosses and subordinates. Yet hierarchy has survived thousands of years because it is a fundamentally sound way to structure organizational relationships, by creating some simple clarity about authority and decision making.

Because hierarchical relationships are so easy to screw up, it has been a fad the past few decades to try to “fix” the problem by eliminating hierarchy. While there is in many cases value gained by reducing layers (along with undesired consequences, such as confusion, demoralization, and lost expertise, that are often underestimated and poorly managed), the problem is not hierarchy. The problem is how humans manage positional authority (their dealings with the people above and below). Simply eliminating layers, or even worse, eliminating front line supervision does not “empower.” More often than not, it creates chaos. The Uddevalla Volvo plant, touted in Tom Peter’s *Search for Excellence*, is a prime example, opening with no frontline supervision (for which they drew acclaim) and closing for lack of productivity.

Whatever your structure, the challenge is how to manage authority for the good of the system, not whether to have it in the system. Drawing on our research and experience within and outside of the US nuclear industry, it is impossible to ignore the importance of how people manage authority relationships. If hierarchical relationships are managed in a rational manner, i.e., one that recognizes the importance of emotion and encourages an open flow of information, then Operational Experience (OE) (as the sharing of incidents and best practices is known in the nuclear industry) and other programmatic approaches to culture, including nuclear safety culture, simply enhance an already robust system. If hierarchical relationships are handled irrationally, then programmatic attempts at safety culture will result in little more than a Band-Aid on a dysfunctional system. Emotionally intelligent leadership and high performance culture are mirror images of each other, can be reliably developed, and are directly related to all aspects of human performance.

In 1987 the Nuclear Regulatory Commission (NRC) shutdown Peach Bottom Atomic Station (PBAPS) due to human performance issues. When the Philadelphia Electric Company (PECO) began rebuilding their Nuclear organization, they happened upon my father, Robert P. Crosby, one of a legion of resources brought to bear on the organization. Crosby began applying the same techniques he had been honing since the 1950s. His prior experience with DOE and Rancho Seco Nuclear helped open the door. At Rancho Seco he crafted a turnaround on the motor operated valve project that was months behind schedule (unfortunately, that effort and additional culture change work was wasted when the public voted to shut down the site permanently). At PECO, Crosby emerged as the leader of the extensive Organization Development (OD) activity that took place in the wake of the shutdown. This paper explores his culture change methods, including the role of experiential learning to enhance Emotional Intelligence and complimentary elements of self-awareness, which he and his associates have replicated in numerous organizations and continue to utilize today.

On March 31, 1987 Peach Bottom Atomic Power Station was indefinitely shutdown, following a series of human performance and equipment related incidents. Infamously, operators were found sleeping on the job, playing video games, engaging in rubber band and paper ball fights, and reading unauthorized material.

As if in anticipation of the Institute of Nuclear Power Operators (INPO) yet to be developed human performance model, blame was not simply placed on the operators. "Latent organizational weakness" was targeted by industry experts and regulators alike. INPO President Zack Pate came to the unprecedented conclusion that, "Major changes in the corporate culture at PECO are required." In September of 1988 NRC Chairman Lando Zech told senior management officials of PECO, "Your operators certainly made mistakes, no question about that. Your corporate management problems are just as serious." Clearly a culture characterized by low morale and apathy prevailed. By April 1988 this unusual emphasis on mismanagement contributed

to the President of PECO resigning and the retirement of the CEO.

By 1996 both Limerick and Peach Bottom were designated excellent by INPO, and given strong Systematic Assessment of Licensee Performance (SALP) ratings by the NRC. Many factors contributed to this stunning success story. The following are the key organization development strategies that were employed:

1. Clarify Goals and Cascade Alignment.

Management must lead and communicate. They must set clear measurable goals, such as increased capacity factor (a measure of how much electricity a generator produces relative to the maximum it could produce during the same period) and lower costs, and lead towards them. They must continually communicate the goals, and engage the organization to understand, monitor, and support efforts to achieve the goals. Equally important, they must stay in touch so as to understand and clear up any misunderstanding regarding the direction they have set.

Crosby understood that alignment must be built layer by layer, and that “you can only truly sponsor your direct reports.” Innumerable change efforts have crashed and burned due to failure to understand this principle. Skip a layer and you create a black hole, sucking the energy out of the initiative. When on top of their game, PECO Nuclear’s leadership followed Crosby’s adaptation of Daryl Conner’s change model. Each layer of sustaining sponsorship was carefully brought on board and charged with the task of driving change to the next layer of the organization. Through cascading dialogue, each layer was positioned both to lead and sustain the current goals of the organization.

PECO Nuclear’s leadership cascaded clear and compelling goals time and again during and after the turn around. They did so early on by educating the organization about de-regulation

and the increasingly competitive environment the industry was facing, by targeting outage length and the millions of dollars in lost revenue that the industry had accepted since its inception, and even after they had firmly established themselves as peak performers, by setting the bar even higher through bold initiatives such as “Mission Possible” and “Target 2000.” Mission Possible was a masterpiece of combining a clear and serious message with playfulness, such as a video of the trench coat clad President of PECO Nuclear accepting a self-destructing tape from the CEO with the organization’s new mission “should he choose to accept it.” Such creativity, coupled with an unrelenting drive towards excellence, characterized the PECO Nuclear story.

2. Develop a Critical Mass of Employees with High Interactive Skills.

Setting clear goals without developing the organization is as likely to backfire as not. General Burnside, during the American Civil War, set clear goals at Fredericksburg, ignored the “feedback” he got from his subordinates, and stood firm while thousands charged needlessly and fruitlessly to their deaths. The US Nuclear Industry has its own examples, such as the Clinton Significant Event Report (SER), which pointed out that the pursuit of production goals was actually part of the problem leading to the 1996 incident at that station. The SER cites management emphases on the need to “maximize plant capacity factors and minimize forced outage rate” as an underlying cause...goals which are shared by every nuclear plant in the nation.

Such goals need to be balanced with a carefully reinforced emphasis on conservative decision making and surfacing of issues. A culture of openness must be fostered or vital information will stay underground. To this end, a critical mass of employees at all levels of the organization must work on managing authority

relationships with a high degree of maturity. This learning must be experiential and not just standard classroom, and be reinforced in subsequent live work interactions.

Crosby helped foster such a culture through all of his interventions, but especially through a week-long experiential learning workshop referred to at PECO Nuclear as Conflict Management. The emerging leadership of the organization almost universally attended, as did a vast majority of the workforce, often with layers, functions, and even locations mixed together to achieve a unique team building. Based on the principles of Social Scientist Kurt Lewin, who stands to a significant degree as the founder of organization development, the Crosby trainings (as they were also often called) utilized the power of group learning.

The primary methodology was a modified T-group, which when led by Crosby and/or his associates, focuses the participants on immediate behavior change and emotional intelligence to a degree that cannot be matched through individual coaching or traditional classroom learning. The result was a widely spread behavioral skill set including an increased capacity to foster a productive nuclear safety environment by giving clear direction, taking a stand for what you believe in, holding yourself and others accountable, fostering communication up and down the hierarchy, managing conflict, connecting with emotional intelligence to all levels of the organization, and continually developing yourself, others, and the organization. As one early participant put it (who later rose to the level of VP of Peach Bottom Atomic Power Station), “before conflict management we thought we were open, but the real meetings would happen after the meeting. People talked about each other and pointed fingers. After conflict management we started dealing with each other much more directly. At times it is difficult, but it is much more productive.”

At the core of such learning is the assertion that hierarchical relationships are emotional, that the emotional tone of the organization is a key variable in human performance, and that a mature and rational approach to emotionality is an essential foundation for sustained performance. An explosion of research supports the assertion that the critical factor in career success is not IQ, but rather EQ, otherwise known as Emotional Intelligence. While high IQ can be a blessing, it can also be a curse if coupled with an inability to connect with others and turn one's ideas into action. For ages, people have unwittingly pursued this curse, trying to control their emotions by denying or ignoring them. Ironically, such an attempt is based on fear of emotion, and hence is irrational. Worse, it blinds the individual to the data available from their own inner guidance system. If blind to emotion, one is more likely to act off it without understanding the root cause of their action. To be rational about one's emotions, one must use their cognitive brain to pay attention to the messages that emotion is providing. Fortunately, science is proving that by working on awareness of emotion in yourself and in others, you don't have to be an Einstein to increase your emotional maturity, which in turn is a major determinate of success and happiness. Again, as Daniel Goleman pointed out in *Working with Emotional Intelligence*:

- EQ accounted for 67% of the abilities deemed necessary for superior performance
- EQ mattered TWICE as much as technical expertise or IQ

Although the process of working on EQ and other behavioral skills through Conflict Management was an alien experience for most, the results spoke for themselves, and helped reinforce strong sponsorship for the process. The process was even applied in 1999 to the new operator's class at Peach Bottom. The prior class had been marked by conflict between the operators and the

instructors, as well as low marks by the NRC for teamwork and leadership. The class that incorporated the conflict management process passed with flying colors.

The following is a scale of interactive skills from Robert P. Crosby's second organization development book, *The Cross-Functional Workplace*. These same behavioral traits were reinforced at every level of PECO Nuclear through experiential learning:

Figure 9:

Leader's Interactive Skill Scale			
Stage	Description of Level	Inner Beliefs & Perceptions of Reality	
High	+6	Empathic connection with others, yet still decisive	"I can walk in your moccasins and be myself which includes being decisive."
	+5	Is clear about wants	"I'll tell you what I need in order to succeed."
	+4	Acknowledgement of one's own part in the interaction	"I help create the dance."
Med	+3	Non-blaming; is specific about behavior and emotions	"Telling it straight is to give non-interpretive feedback."
	+2	Blaming, but is behaviorally specific	"Naming your behaviors proves my judgement."
	+1	Inner awareness, but manifest in blaming	"My judgements are the truth about you."
Low	0	Inner awareness, but non-communicative	"If I stay quiet, things will be 'cool'."
	-1	Inner awareness, but outward distortion	"Telling the truth will make it worse."
	-2	Unaware, with 'cool' blaming	"Let reason conquer emotions."

Such learning is important throughout an organization. It's vitally important that people manage their relationships with

their positional superiors as rationally as possible. The goal is for as many as possible to take responsibility for relating to their boss about the support and resources they need in order to get their jobs done. Ultimately though there is no more emotionally loaded role than that of “boss.” A critical mass of leaders working to encourage open communication from subordinates, and truly getting the emotional impact they have due to their role, is the essential foundation for high performance. React defensively, and/or with blame, and only the boldest subordinate will continue telling you what they really think. With this in mind, encouraging critical feedback and pursuing clarity in such a moment (“please tell me more – what precisely did I do or say that led you to that conclusion?”) is a key focus in the Crosby experiential learning process.

In short, PECO Nuclear had learned through painful experience that without intentional on-going people development, communication withers and complacency results. This is especially true of successful organizations. All individuals and organizations have blind spots. As the Clinton VP put it, “We believe complacency played an important part in our performance decline. We thought we had established all the programs and practices necessary to be a top performing plant.”

3. Reinforce Goal Alignment and Continuous Improvement Conversations in all Intact Teams.

After an initial period of experimentation, PECO Nuclear adapted an increasingly standardized expectation that every team stop periodically to assess how it’s functioning. Bosses and subordinates participated at least annually in a live facilitated upward, downward and peer feedback session, and the entire group strategized on how to improve their work within the context of the organization’s goals. Facilitation helped assure active listening, and helped target coaches to those groups and supervisors most in need. Behavioral skill building was built into the process.

This strategy of work group continuous improvement was sustained for years at PECO Nuclear through a unique survey-feedback process, and through New Reporting Relationship (NRR) meetings, based on a model originally developed by the US Navy. The survey process allowed each intact work group to see their own data, derive their own conclusions, and develop solutions to problems within their own sphere of influence. The NRR meetings occurred at all levels. They served the dual purpose of supporting a smooth transition whenever a leadership change occurred, and of seizing continuous improvement opportunities during the change.

Coupled with the other OD interventions, each team session drove the following systemic characteristics, again excerpted from *The Cross-Functional Workplace*:

Figure 10:
**Characteristics of Healthy
and Unhealthy Systems**

Dimension	Unhealthy System	Healthy System
Management	Frantic	Centered
Influence	None	Appropriate
Alignment	Not well aligned	Well aligned
Communication	Gossip-Closed	Openness and dialogue
Consequence Management	Capricious discipline	Clear consequence
Decision-making	Consistently extreme (either consensual or authoritarian)	Flexible and clear
Interactive skill	Low	High
Task Goals	Unclear	Clear
Accountability	Fuzzy	Single-point
Implementation	Poor	Effective
Rewards	None	Appropriate
Sponsorship	Poor	Clear

4. Drive Cultural Change through Key Cross-Functional Projects.

A classic example of this occurred during Crosby's support at PECO Nuclear as they changed their approach to outages. At the time the industry norm was 90 days to refuel a nuclear plant. Each plant lost somewhere in the vicinity of a million dollars a day in lost revenue. The potential payoff was obvious and huge, but the fear of decreasing the quality of workmanship was understandable and strong. Based on experience in a prior nuclear plant, Crosby was convinced the issue was organizational and behavioral, not some mythical requirement of a certain length to assure quality. Working with and coaching a hard driving leader, he helped Limerick Generating Station organize their outage cross-functionally, and instill the behaviors, including basics such as working to and adhering to a clear timeline, resulting in a more organized effort. PECO's leadership seized the model, and set a string of record length short outages coupled with equally unprecedented problem free operating runs.

In the Crosby culture change model (influenced by his early years as a community organizer) *change doesn't come if the effort is limited to trainings (although training can support change)*. Crosby helped change the organization by implementing desired behaviors in the context of key initiatives. Outage execution, for example, is an excellent time to reinforce single point accountability, conservative decision making, conflict resolution skills, surfacing of issues, and related behaviors. The organization becomes the classroom, with each layer responsible for continuous improvement by rapidly surfacing issues (such as the possibility of missing a deadline), and by giving and receiving behavioral feedback.

Such efforts include participative large group planning processes with a cross-section of the organization including the

hourly workforce. Again, Crosby's methods build the larger team while focusing on a business critical task. His blend of community organizing and organization development improves the quality of the output (planning that includes the people who execute the plan is almost guaranteed to be a better product), increasing ownership, immediate word-of-mouth communication, and most importantly, successful implementation. The same methods have been applied to many organizations outside the industry, in pursuit of key goals such as increased capacity, or reduced costs, with reliable results.

5. Create a “cadre” of key line people early in the process who can help facilitate the change.

Cadre played a key role at PECO Nuclear, assisting in the change process, decreasing the organization's reliance on external resources, and continuing to develop the organization from within. These people, recruited from the hourly as well as the management ranks, were equipped with above all else high interactive skills fostered through the Conflict Management workshops and additional training. Aside from their role in facilitating change, many cadre members rose through the ranks in the organization, to as high as the Nuclear Group President.

At Peach Bottom, they were woven into every initiative, and provided the following on a formal and informal basis:

- Individual coaching regarding conflict, communication skills, etc.
- Third party conflict resolution
- Meeting design and/or facilitation
- Survey feedback and NRR facilitation

Cadre members were woven into key initiatives and many rose to the highest ranks of the organization.

Conclusion

In short, the transformation of PECO Nuclear was no fluke. Many variables came together, including great personnel and a unique burning platform. Nonetheless, the organization development approach described above was a best practice and critical enabler, transforming the organization from a rigid and de-motivating hierarchy to an empowered culture built on a clear and thoughtful balance between management authority and employee influence. Leaders both formal and informal at every level learned how to take clear stands and stay connected. The same methods are reliable and reproducible, and continue to be implemented in nuclear and non-nuclear organizations to this day.